

1 20. BANK PROTECTION – [Low]

- Refer to ISPG.
- Primarily describe when bank protection can legitimately be considered restoration.

1.1 Introduction

1.1.1 Description of Technique

Bank protection as used for habitat protection and restoration

Think of this as a technique within ISPG “Bank Protection as a Habitat Restoration Technique”

Habitat Restoration can be integrated into bank protection projects by including Woody Debris or other structure to create scour, deposition, shade, cover, complex hydraulics, etc., or careful use of appropriate native plant materials to restore native riparian plant communities as components of biotechnical bank protection. Can also be used to reduce negative impacts such as sediment contribution and loss of cover when banks erode rapidly.

Description:

- Providing cover – woody debris ~~LWD~~, logs, and growing plants (shade)
- Providing scour – bank protection structures with natural analogs that create scour
- Providing long-term source of all sizes of woody debris ~~LWD~~ – by reestablishing native riparian forests or other appropriate native riparian plant communities ~~through growth of mature veg~~ on stable bank
- Providing long-term opportunity for dynamic habitat (through gradual deformation)
- Reducing negative impact – sediment supply
- Include the removal of existing bank protection as a habitat restoration activity

1.1.2 Physical and Biological Effects of Bank Protection as Habitat Restoration or Mitigation Objective

- Think of these effects for either the construction of deformable biotechnical bank protection or the removal of hard bank protection, either for habitat objectives.
- Reduces (or restores) sediment supply
- May increase wood supply (riparian management and revegetation)
- Increases shade
- May reduce (or restore) habitat complexity over long term if bank is non-deformable, even when habitat “structure” is incorporated within

1.1.3 Application of Technique

Where is bank protection legitimately applied as habitat restoration/mitigation?

- Return to natural rate of erosion
- mitigate excess sediment source
- stabilize to restore riparian plant communities for their s direct habitat value and/or fortheir ~~its~~ eventual value for geomorphic process
- replace existing bank protection with fish and wildlife –friendly, process-derived alternatives

Refer to WAISPG and the matrices.

Most of the rest of this is moot ~~note~~ – it should be in ISPG

1.2 Scale

Not applicable

1.3 Risk and Uncertainty

Refer to ISPG

1.4 Data Collection and Assessment

- Refer to ISPG

1.5 Methods and Design

- Refer to ISPG

1.6 Project Implementation

1.6.1 Permitting

- Refer to ISPG

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1.6.2 Construction

Dewatering

Fish Species Work Window and Construction Timing

Equipment Access Areas

Equipment Size

Revegetation component

1.6.3 Cost Estimation

Range of costs per unit, cite case examples with total project costs.

Nooksack River

Fanno Creek

Whatcom Creek

Need eastern Washington examples, like Latah/Hangman Creek, near confluence with the Spokane (to keep caskets from cemetery falling in to the creek. There are other examples on this system, but they aren't good except for demonstrating pitfalls and design shortcomings. Other successful examples can be found in central Washington on the east slope of the Cascades. I suggest contacting Bob Steele(WDFW) and Mark Schuppe (Ecology).

1.6.4 Monitoring and Tracking

Physical Integrity

Local Scour

Section and Profile Data

Photo Points

Revegetation establishment

1.6.5 Contracting Considerations

Contractor Experience

Construction Oversight

Need to address plant materials here as well, though reference can be made to this specific set of techniques and considerations in 5.10.13.

1.7 Operations and Maintenance

Revegetation maintenance relative to performance criteria for planting

Maintenance relative to project objectives and monitoring

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1.8 Examples

Fanno Creek

Nooksack River

Whatcom Creek

1.9 References

References cited in this technique so it is a stand-alone pullout.

1.10 Photo and Drawing File Names

List filenames and file locations of any photos and drawing files associated with this technique